REMARKS

Applicants respectfully request the Examiner to reconsider the present application in view of the foregoing amendments to the pending claims and the following remarks.

Amendments to the Claims

Upon entry of the present amendment, claims 1 and 3-4 will be pending in the present application. Claims 1 and 3 have been amended. Claim 2 has been cancelled. Claim 4 has been added.

No new matter has been added by way of these amendments because each amendment is supported by the present specification. For example, the amendment to claim 1 is supported by the present specification, *inter alia*, at page 20, lines 4-18 and page 27, line 20. Claim 3 is amended to no longer depend from claim 2. Support for new claim 4 can be found in claims 1 and 3 as originally filed.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 102(b)

Claims 1-2 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nakagawa et al. '688 (U.S. 6,274,688) or Kennedy et al. '394 (U.S. 4,276,394). Claim 2 has been cancelled herein, which renders the rejection as to this claim moot. With respect to claim 1, Applicants respectfully traverse.

The telechelic polyolefin having a polymer chain specified in the present invention cannot be obtained by a conventional method, and the method disclosed in the present invention made it possible to obtain the telechelic polyolefin for the first time.

Nakagawa et al. '688 disclose examples of a polymer having a polymer chain obtained from ethylene and propylene, but the polymerization method disclosed in Nakagawa et al. '688 is a living radical polymerization. The polymerization method of Nakagawa et al. '688 cannot make a polymer having a polymer chain claimed in the

present invention, as would be known by one of ordinary skill in the art and shown by the enclosed reference (Principles of Polymerization (1991)).

The enclosed reference discloses that 1-alkyl olefin (α-olefins) can be polymerized by a cationic polymerization process (page 200, Table 3-1), but as recited in Chapter 5.2 "Cationic Polymerization of the Carbon-Carbon Double Bond" at page 367, "[p]ropylene, 1-butene, and higher 1-alkenes yield oligomers...with highly irregular structures...." In other words, a cationic polymerization process cannot obtain the telechelic olefin having a primary chain of propylene or α-olefins having 3 or more carbon atoms of the present invention.

On pages 303-304, the reference discloses that a radical polymerization process produces polyethylene, but to one of ordinary skill in the art, the polyethylene obtained by the process is clearly distinguished from the polymer of the present invention in view of molecular weight distribution.

Furthermore, the reference discloses that "α-olefins are not polymerized by etiher radical or ionic initiators" (page 630).

In stark contrast to Nakagawa et al. '688, the claimed telechelic polyolefin having a polymer chain of non-radical polymerizable monomers, which cannot be obtained by a conventional method, can be obtained by the method of the present invention.

Isobutylene disclosed in Kennedy et al. '394 is a cationic polymerizable monomer.

In contrast, the claimed invention relates to a telechelic polyolefin having a polymer chain of non-cationic polymerizable monomers. As amended, claim 1 no longer includes isobutylene.

Therefore, claim 1 is neither anticipated by nor rendered obvious over Nakagawa et al. '688 or Kennedy et al. '394. Thus, withdrawal of the rejection is respectfully requested.

Issues under 35 U.S.C. § 102(e)

Claims 1-2 are rejected under 35 U.S.C. § 102(e) as being anticipated by Sawaguchi '834 (U.S. 7,125,834). Claim 2 has been cancelled herein, which renders the rejection as to this claim moot. With respect to claim 1, Applicants respectfully traverse.

The polymer disclosed in Sawaguchi '834 is produced by a method of thermal decomposition of polyolefins. Therefore, the molecular weight of the polymer is relatively low. Sawaguchi '834 discloses that the number average molecular weight of the polymer ranges from 1,000 to 5,000.

As amended, the number average molecular weight of the polymer of the present invention is 9000. Thus, the present invention is different from the polymer disclosed in Sawaguchi '834.

Therefore, claim 1 is neither anticipated by nor rendered obvious over Sawaguchi '834. Thus, withdrawal of the rejection is respectfully requested.

Issues under 35 U.S.C. § 103(a)

1) Claims 1-2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 02-036204 (hereinafter JP '204) in view of Kennedy et al. '394. Claim 2 has been cancelled herein, which renders the rejection as to this claim moot. With respect to claim 1, Applicants respectfully traverse, and reconsideration and withdrawal of this rejection are respectfully requested.

As the Examiner admits, both references disclose an isobutylene-based polymer. As amended, claim 1 no longer includes isobutylene.

As discussed above, Kennedy et al. '394 do not disclose each and every aspect of claim 1. Applicants respectfully submit that JP '204 does not overcome these deficiencies for the reasons given above.

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (See MPEP 2143.03). As discussed above, the combination of cited references fails to teach or suggest all the claim limitations of independent claim 1. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the instant rejection is respectfully requested.

2) Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawaguchi '834 in view of Kioka et al. '495 (U.S. 5,939,495). Applicants respectfully traverse, and reconsideration and withdrawal of this rejection are respectfully requested.

As discussed above, Sawaguchi '834 does not disclose each and every aspect of claim 1, from which claim 3 depends. Applicants respectfully submit that Kioka et al. '495 do not overcome these deficiencies.

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (See MPEP 2143.03). As discussed above, the combination of cited references fails to teach or suggest all the claim limitations of independent claim 1, from which claim 3 depends. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the instant rejection is respectfully requested.

Newly Proposed Claim 4

Applicants have newly proposed claim 4 in an effort to further define the scope of protection owed to Applicants. Applicants respectfully submit that claim 4 is allowable for the reasons given below. As such, Applicants respectfully assert that claim 4 clearly defines over the prior art of record, and an early indication to this effect is earnestly solicited.

New claim 4 is an independent form of claim 3 as originally filed before the amendment of claim 1. The Examiner contends that claim 3 is unpatentable over Sawaguchi '834 in view of Kioka et al. '495 under 35 U.S.C. § 103(a).

As the Examiner admits, Sawaguchi '834 does not disclose a polymerization catalyst containing a transition metal in the Groups IV to V. Applicants respectfully submit that Sawaguchi '834 possesses several more deficiencies.

The telechelic polymer disclosed in Sawaguchi '834 and the telechelic polymer of the present invention are quite different in production process.

In the present invention, a monomer having a function group is contacted with a catalyst (step 1). Then, the olefin monomer is polymerized (step 2). Then, the monomer

having a functional group is further contacted with the catalyst (step 1), and chemical conversion is carried out (step 3) as needed.

On the other hand, the production process disclosed in Sawaguchi '834 does not have steps 1 and 2. Raw material polymer is thermally decomposed to oligoolefin, which is an intermediate product, having terminal vinylidene double bonds at both ends, and then, the terminal vinylidene double bond is subject to a functional conversion treatment to obtain an object polymer.

Even if the catalyst used in both processes is the same, the process to obtain the polymer is quite different. The steps 1 and 2, which are a characteristic feature of the present invention, are also not disclosed in Kioka et al. '495. Therefore, new claim 4 is not rendered obvious over Sawaguchi '834 in view of Kioka et al. '495.

CONCLUSION

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink (Reg. No. 58,258) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By _____
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Enclosure: Principles of Polymerization (1991).